PATENT COOPERATION TREATY

# PCT



## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

01 APR 2005

| Applicant's or agent's file reference | FOR FURTHER ACTION See Form PCT/IPEA/416 | |
|---|---|---|
| P6077 PC00 | | |
| International application No. | International filing date *(day/month/year)* | Priority date *(day/month/year)* |
| PCT/SE 2003/001507 | 29.09.2003 | 01.10.2002 |
| International Patent Classification (IPC) or national classification and IPC | | |
| B24B 3/54 | | |
| Applicant | | |
| Eklund, Tore | | |

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 3 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:

   a. ☐ *(sent to the applicant and to the International Bureau)* a total of _____ sheets, as follows:

      ☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).

      ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.

   b. ☐ *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s))

      _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

| | | |
|---|---|---|
| ☒ | Box No. I | Basis of the report |
| ☐ | Box No. II | Priority |
| ☐ | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| ☐ | Box No. IV | Lack of unity of invention |
| ☒ | Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| ☐ | Box No. VI | Certain documents cited |
| ☐ | Box No. VII | Certain defects in the international application |
| ☐ | Box No. VIII | Certain observations on the international application |

| Date of submission of the demand | Date of completion of this report |
|---|---|
| 19.04.2004 | 08.06.2004 |
| Name and mailing address of the IPEA/SE<br>Patent- och registreringsverket<br>Box 5055<br>S-102 42 STOCKHOLM<br>Facsimile No. +46 8 667 72 88 | Authorized officer<br>Anders Brinkman/MP<br>Telephone No. +46 8 782 25 00 |

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

International application No.
PCT/SE 2003/001507

**Box No. I Basis of the report**

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☒ This report is based on a translation from the original language into the following language English, which is the language of a translation furnished for the purposes of:

☐ international search (under Rules 12.3 and 23.1(b))
☒ publication of the international application (under Rule 12.4)
☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

☒ the international application as originally filed/furnished

☐ the description:

pages _____ as originally filed/furnished
pages* _____ received by this Authority on _____
pages* _____ received by this Authority on _____

☐ the claims:

pages _____ as originally filed/furnished
pages* _____ as amended (together with any statement) under Article 19
pages* _____ received by this Authority on _____
pages* _____ received by this Authority on _____

☐ the drawings:

pages _____ as originally filed/furnished
pages* _____ received by this Authority on _____
pages* _____ received by this Authority on _____

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____
☐ the claims, Nos. _____
☐ the drawings, sheets/figs _____
☐ the sequence listing *(specify)*: _____
☐ any table(s) related to the sequence listing *(specify)*: _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages _____
☐ the claims, Nos. _____
☐ the drawings, sheets/figs _____
☐ the sequence listing *(specify)*: _____
☐ any table(s) related to the sequence listing *(specify)*: _____

* *If item 4 applies, some or all of those sheets may be marked "superseded."*

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

International application No.
PCT/SE 2003/001507

**Box No. V** **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

| | | | |
|---|---|---|---|
| Novelty (N) | Claims | 1-9 | YES |
| | Claims | | NO |
| Inventive step (IS) | Claims | 1-9 | YES |
| | Claims | | NO |
| Industrial applicability (IA) | Claims | 1-9 | YES |
| | Claims | | NO |

2. Citations and explanations (Rule 70.7)

Documents cited in the International Search Report:

D1: WO 9911428 A1
D2: DE 582357 C
D3: DE 4341872 A1
D4: DE 10044614 A1
D5: CH 502162 A
D6: FR 1171230 A
D7: US 989692 A
D8: US 2646653 A
D9: US 4672778 A

The cited documents represent the general state of the art.

The invention defined in claims 1-9 is not disclosed by any of these documents.

The cited prior art does not give any indication that would lead a person skilled in the art to the claimed tool. Therefore, the claimed invention is not obvious to a person skilled in the art.

Accordingly, the invention defined in claims 1-9 is novel and is considered to involve an inventive step. The invention is industrially applicable.

# PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

# PCT

NOTICE INFORMING THE APPLICANT OF THE COMMUNICATION OF THE INTERNATIONAL APPLICATION TO THE DESIGNATED OFFICES

(PCT Rule 47.1(c), first sentence)

To:

DR LUDWIG BRANN PATENTBYRÅ AB
Box 17192
Maria Skolgata 83
S-104 62 Stockholm
SUÈDE

ANKOM
BRANN 01 APR 2005

| | |
|---|---|
| Date of mailing *(day/month/year)*<br>15 April 2004 (15.04.2004) | |
| Applicant's or agent's file reference<br>P6077PC | **IMPORTANT NOTICE** |

| International application No. | International filing date *(day/month/year)* | Priority date *(day/month/year)* |
|---|---|---|
| PCT/SE2003/001507 | 29 September 2003 (29.09.2003) | 01 October 2002 (01.10.2002) |

Applicant: EKLUND, Tore

1. Notice is hereby given that the International Bureau has **communicated**, as provided in Article 20, the international application to the following designated Offices on the date indicated above as the date of mailing of this notice:

   AU, AZ, BY, CH, CN, CO, DZ, EP, HU, JP, KG, KP, KR, MD, MK, MZ, RU, TM, US

   In accordance with Rule 47.1(c), third sentence, those Offices will accept the present notice as conclusive evidence that the communication of the international application has duly taken place on the date of mailing indicated above and no copy of the international application is required to be furnished by the applicant to the designated Office(s).

2. The following designated Offices have waived the requirement for such a communication at this time:

   AE, AG, AL, AM, AP, AT, BA, BB, BG, BR, BZ, CA, CR, CU, CZ, DE, DK, DM, EA, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, ID, IL, IN, IS, KE, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MG, MN, MW, MX, NI, NO, NZ, OA, OM, PG, PH, PL, PT, RO, SC, SD, SE, SG, SK, SL, SY, TJ, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW

   The communication will be made to those Offices only upon their request. Furthermore, those Offices do not require the applicant to furnish a copy of the international application (Rule 49.1(a-*bis*)).

3. Enclosed with this notice is a copy of the international application as published by the International Bureau on 15 April 2004 (15.04.2004) under No. WO 2004/030861

4. **TIME LIMITS for filing a demand for international preliminary examination and for entry into the national phase**

   The applicable time limit for entering the national phase will, **subject to what is said in the following paragraph,** be **30 MONTHS** from the priority date, not only in respect of any elected Office if a demand for international preliminary examination is filed before the expiration of **19 months** from the priority date, but also in respect of any designated Office, in the absence of filing of such demand, where Article 22(1) as modified with effect from 1 April 2002 applies in respect of that designated Office. For further details, see *PCT Gazette* No. 44/2001 of 1 November 2001, pages 19926, 19932 and 19934, as well as the *PCT Newsletter*, October and November 2001 and February 2002 issues.

   In practice, **time limits other than the 30-month time limit** will continue to apply, for various periods of time, in respect of certain designated or elected Offices. For **regular updates on the applicable time limits** (20, 21, 30 or 31 months, or other time limit), Office by Office, refer to the *PCT Gazette*, the *PCT Newsletter* and the *PCT Applicant's Guide*, Volume II, National Chapters, all available from WIPO's Internet site, at http://www.wipo.int/pct/en/index.html.

   For filing a **demand for international preliminary examination**, see the *PCT Applicant's Guide*, Volume I/A, Chapter IX. Only an applicant who is a national or resident of a PCT Contracting State which is bound by Chapter II has the right to file a demand for international preliminary examination (at present, all PCT Contracting States are bound by Chapter II).

   It is the applicant's **sole responsibility** to monitor all these time limits.

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No.(41-22) 740.14.35

Authorized officer: Gijsbertus Beijer - Carlos Roy

Telephone No.(41-22) 338.91.11

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# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

01 APR 2005

(PCT Article 36 and Rule 70)

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| PCT/SE 2003/001507 | 29.09.2003 | 01.10.2002 |
| International Patent Classification (IPC) or national classification and IPC | | |
| B24B 3/54 | | |
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4. This report contains indications relating to the following items:
   - ☒ Box No. I Basis of the report
   - ☐ Box No. II Priority
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   - ☐ Box No. IV Lack of unity of invention
   - ☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - ☐ Box No. VI Certain documents cited
   - ☐ Box No. VII Certain defects in the international application
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| Date of submission of the demand | Date of completion of this report |
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| 19.04.2004 | 08.06.2004 |
| Name and mailing address of the IPEA/SE<br>Patent- och registreringsverket<br>Box 5055<br>S-102 42 STOCKHOLM<br>Facsimile No. +46 8 667 72 88 | Authorized officer<br>Anders Brinkman/MP<br>Telephone No. +46 8 782 25 00 |

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
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☐ the claims:

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pages* _____ as amended (together with any statement) under Article 19
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pages* _____ received by this Authority on _____

☐ the drawings:

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pages* _____ received by this Authority on _____

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- ☐ the claims, Nos. _____
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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/SE 2003/001507

**Box No. V** **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

| | | | |
|---|---|---|---|
| Novelty (N) | Claims | 1-9 | YES |
| | Claims | | NO |
| Inventive step (IS) | Claims | 1-9 | YES |
| | Claims | | NO |
| Industrial applicability (IA) | Claims | 1-9 | YES |
| | Claims | | NO |

2. Citations and explanations (Rule 70.7)

Documents cited in the International Search Report:

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The invention defined in claims 1-9 is not disclosed by any of these documents.

The cited prior art does not give any indication that would lead a person skilled in the art to the claimed tool. Therefore, the claimed invention is not obvious to a person skilled in the art.

Accordingly, the invention defined in claims 1-9 is novel and is considered to involve an inventive step. The invention is industrially applicable.

530029

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

01 APR 2005

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
15 April 2004 (15.04.2004)

PCT

(10) International Publication Number
WO 2004/030861 A1

(51) International Patent Classification[7]: B24B 3/54

(21) International Application Number:
PCT/SE2003/001507

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29 September 2003 (29.09.2003)

(25) Filing Language: Swedish

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(30) Priority Data:
0202887-6 1 October 2002 (01.10.2002) SE

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(74) Agent: DR LUDWIG BRANN PATENTBYRÅ AB; Box 17192, Maria Skolgata 83, S-104 62 Stockholm (SE).

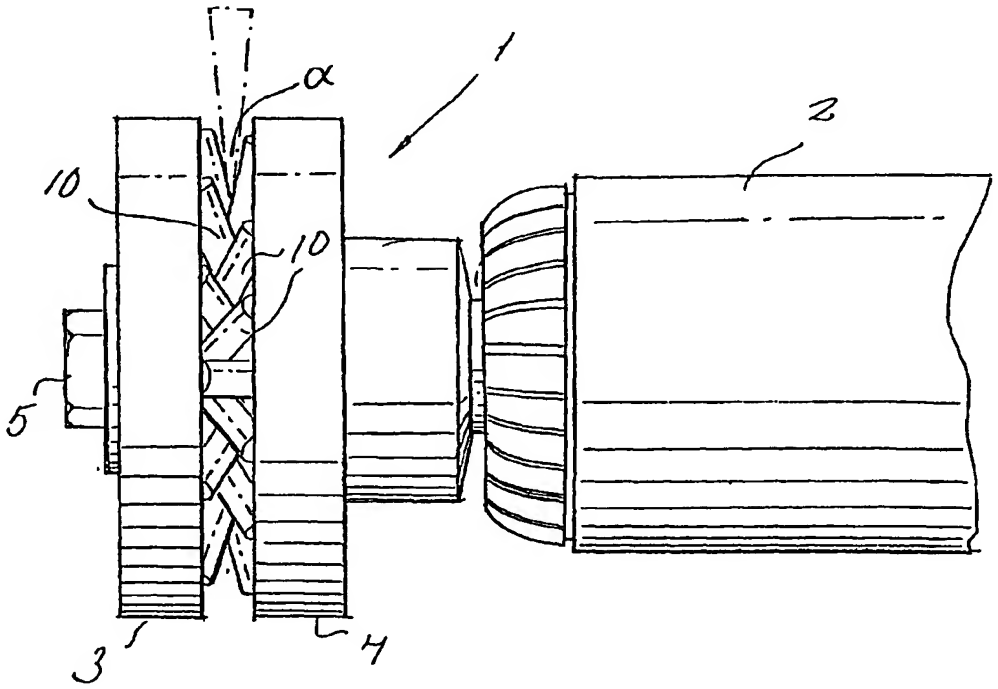
(81) Designated States *(national)*: AE, AG, AL, AM, AT (utility model), AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ (utility model), CZ, DE (utility model), DE, DK (utility model), DK, DM, DZ, EC, EE (utility model), EE, EG, ES, FI (utility model), FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK (utility model), SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**
— *with international search report*

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: A TOOL FOR POLISHING THE EDGE OF A KNIFE




(57) Abstract: A tool for polishing knife's edges, the tool (1) comprising two oppositely positioned and co-rotating rings of elongate honing studs (10), extended at intersecting directions forming an angle (α) wherein the knife's edge is inserted to be straightened by the rotating polishing tool.

WO 2004/030861 A1

TITLE

A tool for polishing the edge of a knife.

TECHNICAL FIELD

The present invention relates to a tool for polishing the edge of a knife, and more specifically to a driven, rotary tool for straightening a knife's edge in accordance with the preamble of claim 1.

TECHNICAL BACKGROUND AND PRIOR ART

In this context, polishing refers to a step that is performed in connection with the straightening of a knife's edge, comprising an operation to zero in the outermost, comparatively thin edge of a sharpened knife blade by the use of a smooth steel tool. This step is normally performed manually by repeatedly moving the knife's edge along a straight and smooth steel tool in a cutting motion, towards and away from the operator, such that both sides of the knife is alternately brought into contact with the steel tool, while ensuring that the knife's contact angle with the steel tool is accurate and the same for both sides of the knife being polished. If the knife is applied at an angle that is incorrect, or too large, there is a significant risk of bending the edge from one side to the other, eventually resulting to a broken edge. Naturally, the manual procedure leads to varying results and requires a certain amount of skill to be acquired, in order to repeatedly achieve satisfying results.

A sharpening apparatus is known from US 5 478 272, comprising arcuate steel members supported in one end to pivot from a base member. The steel bars are biased, and crossing each other in front of a slot formed in the base member. The knife's edge is pressed manually towards the steel members and pulled lengthwise through the slot, while forcing the point of intersection between the steel members always to contact the knife's edge, independently of the contact pressure from the knife. The apparatus is stationary and arranged to be fastened onto a work surface.

A knife in use is subjected to mechanical forces that effect the straightness of the knife's edge and thus reduces the effectiveness of the knife. For this reason, the

knife's edge is normally straightened several times between successive operations for sharpening the edge. Thus, the manual polishing procedure may be seen as time consuming and labor-intensive, requiring repeated movements of the arms in frequent polishing operations.

The present invention aims to improve prior methods by providing a polishing tool that leads to repeatable results without requiring special skills to be acquired by the operator, and more specifically with respect to the contact angle between polishing tool and the two sides of the knife blade.

Another object is to provide a time- and laborsaving polishing tool of high capacity.

These and other objects are met in a tool according to the features and characterizing portion of claim 1. Embodiments are specified in subordinated claims.

According to the invention there is provides a polishing tool driven for rotation. The polishing tool comprises two oppositely positioned and co-rotating rings of elongate honing studs, extended at intersecting directions forming an angle (α) wherein the knife's edge is inserted to be straightened by the rotating polishing tool.

SHORT DESCRIPTION OF THE DRAWINGS

The invention is more closely explained below, reference being made to the accompanying drawings wherein

Fig. 1 shows a side view of a hand held device and polishing tool in mounted position, and

Fig. 2 shows the separate polishing tool in a partially sectioned side view.

DETAILED DESCRIPTION OF EMBODIMENTS

Referring to figs. 1-2, an embodiment of the invention is shown to comprise a polishing tool 1, more closely explained below, and arranged to be driven for rotation. The polishing tool 1 comprises two oppositely positioned and co-rotating rings of

honing studs (10), extended at intersecting directions that form an angle (α) wherein a knife's edge is inserted to be straightened by the rotating studs of the polishing tool. The polishing tool may be stationary mounted or carried by a hand held drive means, and electrically, pneumatically or hydraulically driven.

In a preferred embodiment the polishing tool 1 has two rotationally symmetric bodies (3,4), the bodies being substantially identically shaped and coupled axially by means of a through bolt 5. In a mounted position, the bolt 5 may be dimensioned to reach through the bodies 3,4 for engagement with a fixture or chucking device in order to connect the polishing tool 1, non-rotationally, with the drive shaft of a hand held electric motor 2. Preferably, the bodies 3,4 are rotationally symmetric and driven to rotate at a rotation speed that provides a peripheral speed which is suitable for polishing.

A hub 6 arises from a center portion of each body 3,4, the hub having a sloping wall 7 connecting the top of the projecting hub with the front end of the body 3,4, radially outside the hub. In the mounted position, the bodies are positioned with front ends and hubs 6 facing each other, either directly in contact or through an intermediate elastic element 8. Each hub 6 comprises a number of blind bores 9 evenly spaced on a circular line about the sloping wall 7. The bores 9 extend in radial direction towards the periphery of the body 3,4, and sloping with respect to a sectional plane cutting transversely through a central axis of the body. The hub 6 further comprises a central through hole (broken lines in fig. 2) for the bolt 5, and may have a recess cut down from the top surface for accommodation of the elastic element 8, such as a coil spring 8.

A honing stud 10 having a smooth periphery is inserted, by its inner end, in each blind bore 9. In the shown embodiment the honing stud 10 is bolt-shaped, having a circular cross section, and is produced from a material having a hardness greater than the hardness of a knife's blade. For example, the honing stud 10 may be produced in metal or metal alloy, ceramic material or glass. Alternatively, the honing stud may be composed from a core surrounded by a layer of other material, and subjected to hardening processes or surface hardening, as appropriate. The term

"honing stud", as used in this description, should be interpreted by its functional use for polishing knife's edges without limitation to materials from which the stud is composed and produced.

The honing stud 10 generally has an elongate shape and an axial length which is determined such that a free, radially outer end of the stud terminates within the perimeter of the opposite body 3 or 4, respectively. An endless, circular groove or recess 11 is formed in this same end of the body 3,4, the circular groove 11 receiving and supporting the free ends of the honing studs 10 of the opposite body when the bodies are coupled to form the polishing tool 1. This way, the honing studs are prevented from being dislodged by centrifugal forces arising as the tool is rotated, and a replacement of the honing studs is also simplified. Alternatively, the reception of the outer end of the studs may have a shape other than the suggested groove 11, and may for example be provided as separate pits or a ring shaped projection, etc.

An alternative embodiment (not shown in the drawings) foresees that the honing studs 10 are attached radially within the perimeter of the supporting bodies, respectively, to be supported by their inner ends in recesses formed in a central portion of the opposite body, or in the wall 7.

The diameter of the honing studs10, and angular distances between the evenly spaced bores 9 arranged on a circular line, preferably is related such that the studs are brought in contact with each other, thereby blocking the bodies 3,4 and preventing relative rotation of the bodies in the coupled position, wherein the honing studs 10 of one body 3,4 intersects with the honing studs 10 of the opposite body 4,3.

The slope angle of the bores 9, deciding the relative slope and intermediate angle $\alpha$ between the intersecting honing studs, is determined for straightening the edge of a knife's blade (see the broken lines in fig. 1) that is inserted in the angular space and applied to contact the studs. The angle $\alpha$ may, for example, be in the range of 20-50°, advantageously between 25° and 45°. Apparently, the intermediate angle $\alpha$ between intersecting studs remains the same also if the bodies are urged towards

each other in axial movement, against the force of the intermediate elastic element 8, when sufficient load is applied from the knife's blade.

Significantly, the operation of a rotary polishing tool according to this invention is characterized by a gradual and smooth shaping of the knife's edge. This may be referred to the effect of the points of intersection between the rotating honing studs, that is the apex of the intermediate angle α, gradually approaching the knife's edge that is applied tangentially to the circular path of rotation of these points of intersection. In other words, the knife's edge is brought in contact with the honing studs at an intersecting angle α, only at that moment, when the contact points on the arcuate surfaces of the studs passes a line perpendicular from the knife's edge, and through the center of rotation of the polishing tool. Before and after that moment or that perpendicular line (as seen in the direction of rotation), the knife's edge is located at a longer radial distance from the center of rotation, and radially outwardly of the apex of the intersecting angle. Thus, the distance between intersecting honing studs as measured transversely to the knife's edge is constantly decreasing towards the perpendicular, wherein the knife's edge passes the apex of the intersecting angle. This relation is used in the invention for straightening, smoothly, any such deformation referring to a departure from a linear extension of the knife's edge, by gradually increasing the contact pressure applied from the rotating honing studs.

The invention may be realized in various embodiments. For example, two rings of intersecting honing studs may be extended at an intersecting angle from a common rotating body, wherein the inner ends of the studs are supported by, e.g., a threaded attachment. Other variants may comprise honing studs formed as protrusions and integrally formed in sloping front ends of two opposite, identical bodies driven for rotation, such that a supplementary recess between adjacent studs/protrusions is effective for receiving the studs of the opposite body when the bodies are coupled and angularly displaced, substantially as a pair of interacting bevel gears overlapping in a central portion of the gears. Further, the honing studs may be of other sectional profiles than the one described above, such as elliptic, super elliptic, oval, round, circular, or with a partially circular or rounded surface

sweeping the knife's edge. Also, the honing studs may have a continuous sectional profile through the whole length of the stud, or be conically tapered towards or from the center of rotation. The accompanying claims include all such variations to the invention that will be understood by a man skilled in the art from reading the above description.

CLAIMS

1. A tool (1) for polishing a knife's edge, the tool comprising two substantially identical rotation symmetric bodies (3,4) carried on a rotary shaft of a hand held motor (2), said bodies having front ends facing each other in direct contact or through an intermediate elastic element (8), and further comprising two co-rotating rings of honing studs (10) facing each other, the honing studs extended between the bodies (3,4) at intersecting directions forming an intermediate angle (α) wherein the knife's edge is inserted to be straightened by the tool in rotation, characterized in that the radially inner end of each honing stud (10) is supported from a central portion (6) in the front end of one body (3,4), and the outer end is received and supported within the perimeter of the front end of the opposite body (3,4), when the bodies are mounted on the rotary shaft.

2. The tool of claim 1, characterized in that the inner ends of the honing studs (10) are inserted in blind bores (9) that are evenly spaced on a circular line about a hub (6), arising from a center portion in the front end of each body (3,4), the blind bores sloping radially towards the perimeter of the body, and a formation (11) arranged within said perimeter receiving the outer ends of the honing studs from the opposite body when the bodies are mounted on the rotary shaft, thereby preventing the honing studs from being dislodged due to centrifugal forces arising during rotation of the polishing tool.

3. The tool of claim 2, characterized by an elastic element (8) being inserted between the bodies (3,4), by which the bodies are axially movable towards each other on the shaft against the force of the elastic element (8), when sufficient load is applied from the knife's blade/knife's edge.

4. The tool of any previous claim, characterized by each body (3,4) being formed with a hub (6) arising above the front end and having a central through hole, a sloping wall (7) connecting the top of the hub to a radially outer portion of the front end, and a formation (11) arranged in the front end within the perimeter of the body, the formation being a ring-shaped groove, a number of pits, or a protrusion, and blind

bores (9) receiving the inner ends of the honing studs (10) arranged on a circle running about the sloping wall (7).

5. The tool of any previous claim, wherein the bodies (3,4) are prevented from relative rotation through the honing studs (10) intersecting under mutual contact when the bodies are mounted on the shaft.

6. The tool of any previous claim, wherein the honing studs (10) having an oval, or an elliptic, or a circular sectional profile at least in a portion of the surface that sweeps the knife's edge.

7. The tool of any previous claim, wherein the honing studs (10) are produced from a ceramic material, from metal, or from glass.

8. The tool of claim 7, wherein the honing studs (10) are composed from a core surrounded by a layer of other material than the core.

9. The tool of any previous claim, wherein the intermediate angle α between intersecting honing studs is 20-50°, preferably 25-45°.

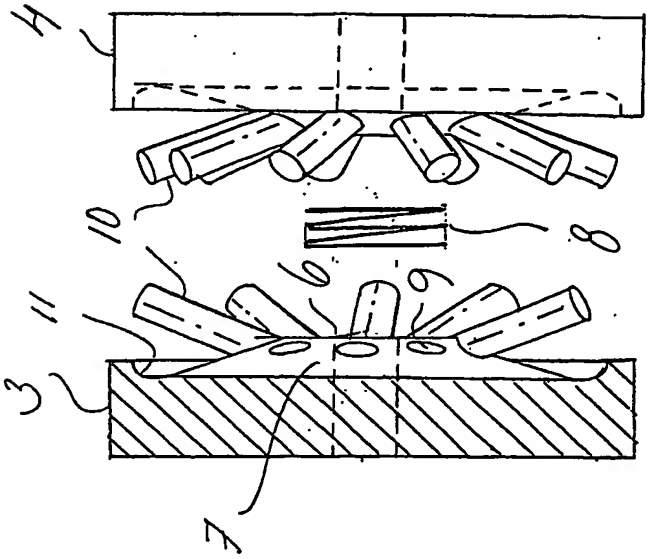



Fig. 2

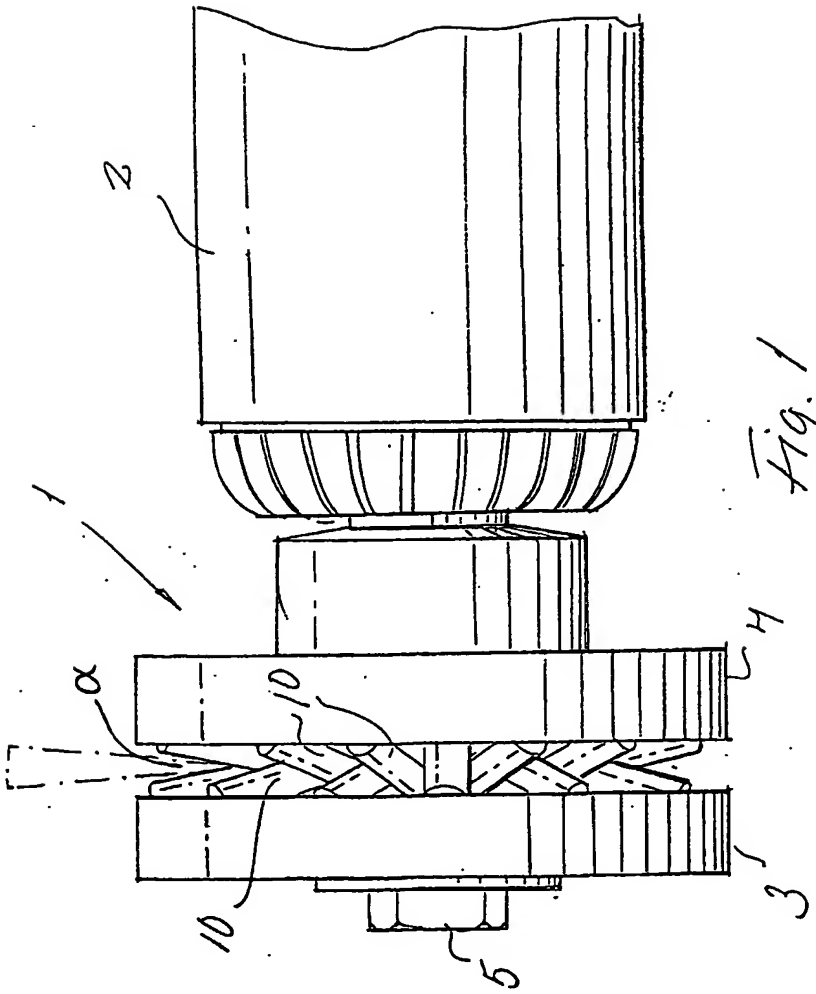



Fig. 1

# INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

IPC7: B24B 3/54
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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: B24B, B24D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-INTERNAL, WPI DATA

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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| A | DE 10044614 A1 (KRAUSE, GEORG ET AL), 10 May 2001 (10.05.01) -- | 1 |

[X] Further documents are listed in the continuation of Box C. [X] See patent family annex.

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International application No.
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| A | US 2646653 A (B.K. MURCHISON), 28 July 1953 (28.07.53) -- | 1 |
| A | US 4672778 A (UDO RIESER), 16 June 1987 (16.06.87) -- | 1 |

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Information on patent family members

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| US 2646653 A | 28/07/53 | NONE | |
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| | | DE 3363626 D | 00/00/00 |
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(74) Agent: DR LUDWIG BRANN PATENTBYRÅ AB; Box 17192, Maria Skolgata 83, S-104 62 Stockholm (SE).

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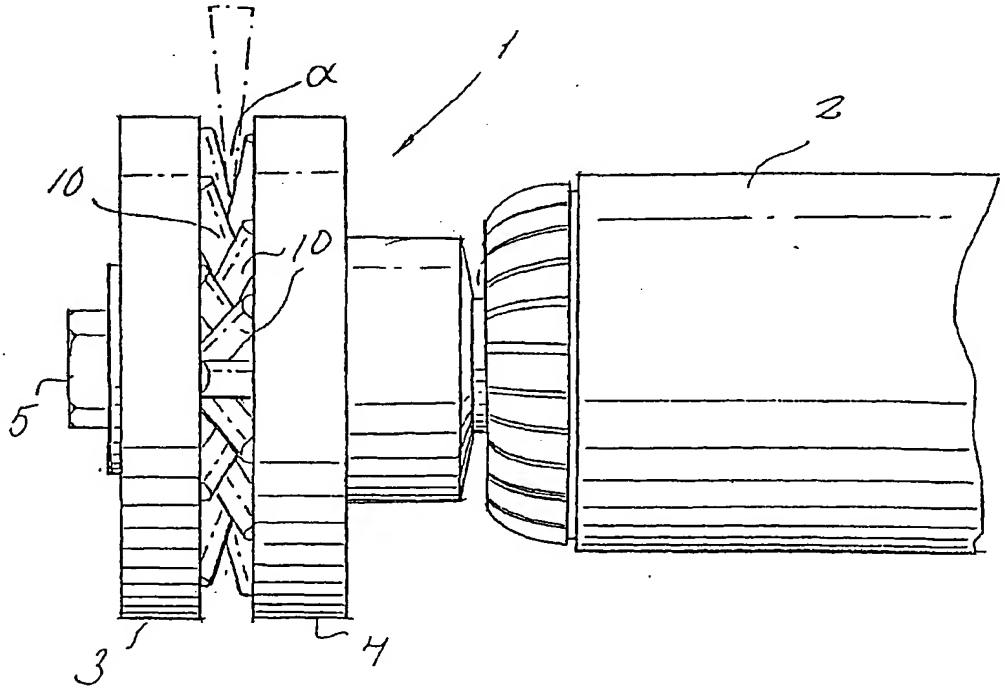
*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: A TOOL FOR POLISHING THE EDGE OF A KNIFE




(57) Abstract: A tool for polishing knife's edges, the tool (1) comprising two oppositely positioned and co-rotating rings of elongate honing studs (10), extended at intersecting directions forming an angle (α) wherein the knife's edge is inserted to be straightened by the rotating polishing tool.

WO 2004/030861 A1

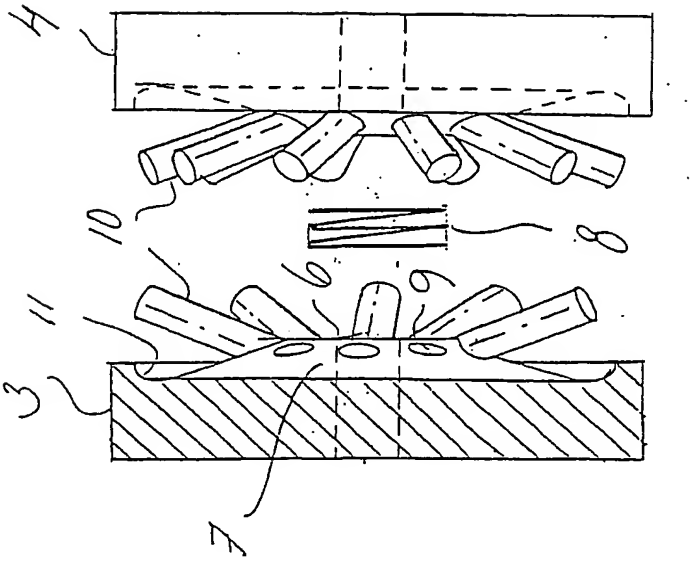
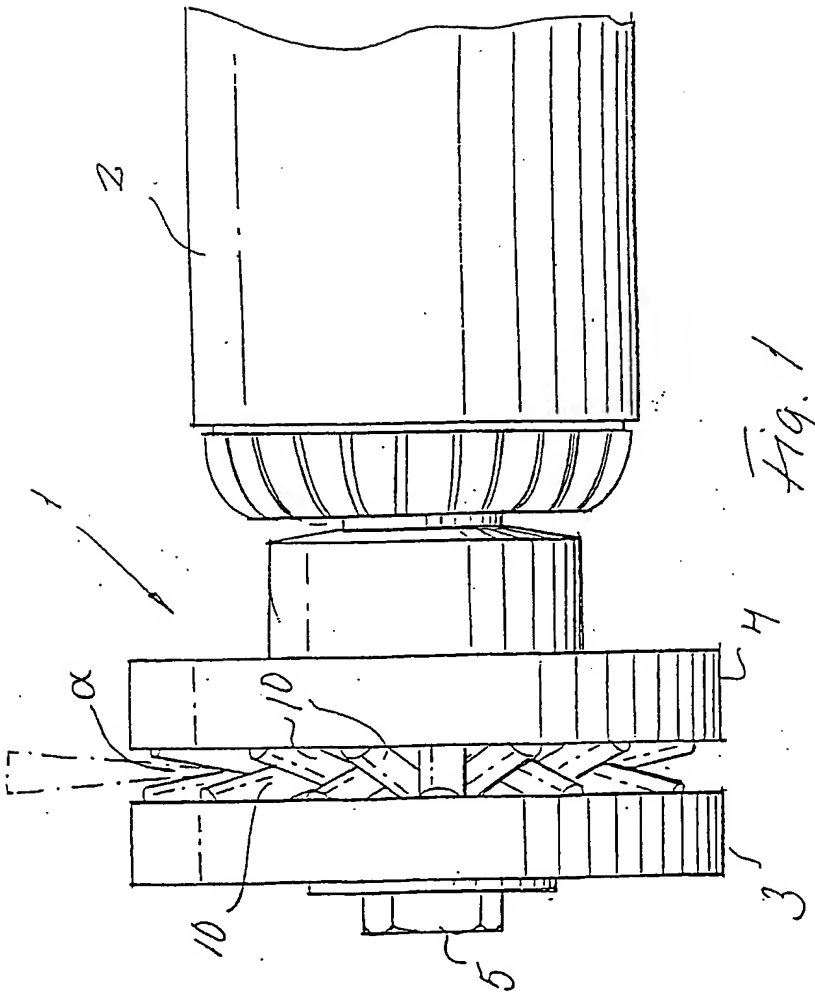



Fig. 2

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Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-INTERNAL, WPI DATA

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